WHAT IS CLAIMED IS:

1. A storage system comprising:

at least two physical disk devices storing data of a plurality of logical disk devices, wherein a logical disk device is a target device of an access request from a data processing unit coupled to the storage system;

a controller, coupled to the data processing unit, for controlling data accesses from the data processing unit,

wherein said controller performs the steps of:

referring to access information about access activity to said logical disk devices in said at least two physical disk devices,

determining, in accordance with said access information about access activity, a first logical disk device allocated in at least one first physical disk device having a first access activity and a second logical disk device allocated in at least one second physical disk device having a second access activity, wherein said first access activity is greater than said second access activity,

transferring said first logical disk device from said at least one first physical disk device to said at least one second physical disk device and transferring said second logical disk device from said at least one second physical disk device to said at least one first physical disk device, and

updating correlation between logical disk devices and physical disk devices.

2. A storage system according to claim 1, wherein said controller decides a logical disk device as said first logical disk device if access activity to the logical disk device is greater than a predetermined first value of access activity.

3. A storage system according to claim 1, wherein said controller decides a logical disk device as said second logical disk device if access activity to the logical disk device is smaller than a predetermined second value of access activity.

4. A storage system according to claim 1, wherein said controller has a memory, transfers data of said first logical disk device to said at least one second physical disk device through said memory, and transfers data of said second logical disk device to said at least one first physical disk device through said memory.

5. A storage system according to claim 1, wherein said controller has mapping information indicating positions of said plurality of logical disk devices in said plurality of physical disk devices.

6. A storage system according to claim 5, wherein said controller modifies said mapping information in accordance with a result of data transfer, and accesses data of said first logical disk device based on modified mapping information after data of said first logical disk device is transferred to said at least one second physical disk device.

7. A storage system according to claim 1, wherein said access request from said data processing unit includes information designating a logical disk device and a location of record storing target data in said logical disk device.

8. A storage system according to claim 7, wherein said one or plural first physical disk devices configure level 1 Redundant Array of Inexpensive Disks (RAID)

and said one or plural second physical disk devices configure level 5 RAID.

9. A storage system according to claim 7, wherein said one or plural first physical disk devices configure level 5 Redundant Array of Inexpensive Disks (RAID) and said one or plural second physical disk devices configure level 1 RAID.

10. A reallocation method, used in a storage system having a control unit coupled to a data processing unit, and a plurality of physical disk devices to which at least two logical disk devices are allocated, wherein a logical disk device is a virtual disk device which is a target device of an access from said data processing unit, for reallocating said at least two logical disk devices to a plurality of physical devices, said reallocation method performed by said control unit comprising the steps of:

referring to access information about access activity to said at least two logical disk devices;

determining, in accordance with referred access activity, a first logical disk device allocated in at least one first physical disk device having a first value of access activity and a second logical disk device allocated in at least one second physical disk device having a second value of access activity, where said first value of access activity is greater than said second value of access activity; and

reallocating said first logical disk device and said second logical disk device in at least one physical disk device, so that said first logical disk device is reallocated in at least one second physical disk device and said second logical disk device is reallocated in at least one first physical disk device.

11. A reallocating method according to claim 10, further comprising the step of:

previously allocating data of said first logical disk device to said at least one first physical disk device so that the data is consecutively arranged in said at least one first physical disk device.

12. A reallocating method according to claim 10, wherein said reallocating step comprising the steps of:

receiving an access request to an area of said first logical disk device from the data processing unit;

deciding, in response to said access request, whether or not said first logical disk device, which includes the area, has been reallocated;

accessing a first physical disk device if a result of the deciding step indicates that said first logical disk device has not been reallocated; and

accessing a second physical disk device if the result of the deciding step indicates that said first local disk device has been reallocated.

13. A reallocating method according to claim 12, wherein said access request from the data processing unit includes information designating said first logical disk device.

14. A reallocating method according to claim 13, wherein said at least one first physical disk device stores a logical disk device according to Redundant Array of Inexpensive Disks (RAID) level 1, and said one or plural second physical disk devices store a logical disk device according to RAID level 5.

15. A reallocating method according to claim 10, wherein the reallocating step comprising the steps of:

transferring data of said first logical disk device from said at least one first physical disk device to said at least one second physical disk devices; and

transferring data of said second logical disk device from said at least one second physical disk device to said at least one first physical disk device.

16. A reallocating method according to claim 10, wherein the reallocating step comprises the steps of:

transferring data of said first logical disk device from said at least one first physical disk devices to another storage device in said storage system and transferring said data of said first logical disk device stored in said another storage device to said at least one second physical disk device; and

transferring data of said second logical disk device from said at least one second physical disk device to another storage device in said storage system and transferring said data of said second logical disk device stored in said another storage device to said at least one first physical disk device.

17. A reallocating method according to claim 16, wherein said another storage device is a cache memory in said control unit.

18. A storage system comprising:

at least two physical disk devices storing data of a plurality of logical disk devices, wherein a logical disk device is a virtual device which is an object of

accesses from a data processor unit; and

a controller, coupled to the data processing unit, for controlling data accesses from the data processing unit,

wherein said controller performs the steps of:

referring to access information about access activities to said logical disk devices in said at least two physical disk devices,

determining, in accordance with said access information about access activities, a first logical disk device in at least one first physical disk device and a second logical disk device in at least one second physical disk device, wherein access activities to said first logical disk device is greater than access activities to said second logical disk device, and

reallocating said first logical device to said at least one second physical disk device and reallocating said second logical disk device to said at least one first physical disk device.

19. A storage system according to claim 18, wherein said controller further performs the steps of:

receiving an access request from the data processing unit, said access request includes information designating said first logical disk device;

deciding one or plural physical disk devices to which said first logical disk device is allocated; and

accessing the decided at least one physical disk device according to said access request.

20. A storage system according to claim 18, wherein said at least one first

physical disk device stores at least one logical disk device according to Redundant Array of Inexpensive Disks (RAID) level 5, and said at least one second physical disk device stores at least one logical disk device according to RAID level 1.

21. A storage system according to claim 18, wherein said controller further performs the steps of:

transferring data of said first logical disk device to another storage device in said storage system and transferring said data of said first logical disk device stored in said another storage device to said at least one second physical disk device; and

transferring data of said second logical disk device to another storage device in said storage system and transferring said data of said second logical disk device stored in said another storage device to said at least one first physical disk device,

22. A storage system according to claim 21, wherein said another storage device is a cache memory included in said controller.